



Healthy Heart

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Honorary Editor :
Dr. Anish Chandarana



From the desk of Editor:

Cardiovascular morbidity and mortality represent a special concern in the patient with known (or risk factors for) cardiovascular disease who undergoes noncardiac surgery. Perioperative cardiovascular complications increase the cost and length of stay and may also influence outcome over subsequent years. This issue attempts to distill the information gathered in recent years about evaluation and management of such patients in perioperative period, incorporating various international guidelines.

Dr. Anish Chandarana

Evaluation and Management of Cardiac Patients undergoing Noncardiac Surgery:

Active Cardiac Conditions for Which the Patient Should Undergo Evaluation and Treatment Before Noncardiac Surgery

Condition	Examples
Unstable coronary syndromes	<ul style="list-style-type: none"> ■ Unstable or severe angina (CCS class III or IV) ■ Recent MI
Decompensated HF	<ul style="list-style-type: none"> ■ NYHA functional class IV; worsening or new-onset HF
Significant arrhythmias	<ul style="list-style-type: none"> ■ High-grade atrioventricular block ■ Mobitz II atrioventricular block ■ Third-degree atrioventricular block ■ Symptomatic bradycardia ■ Symptomatic ventricular arrhythmias ■ Supraventricular arrhythmias (including atrial fibrillation) with uncontrolled ventricular rate (HR > 100 bpm at rest) ■ Newly recognized ventricular tachycardia
Severe valvular disease	<ul style="list-style-type: none"> ■ Severe aortic stenosis (mean pressure gradient > 40 mm Hg, aortic valve area < 1.0 cm², or symptomatic) ■ Symptomatic mitral stenosis (progressive dyspnea on exertion, exertional presyncope, or HF) or MVA < 1.5 cm²

Different noncardiac surgeries present and impose different levels of risks, and so preventive and monitoring strategies should be different for them.

Cardiac Risk Stratification for Noncardiac Surgical Procedures

Risk Stratification	Procedure Examples
High (reported cardiac risk often > 5%)	Aortic and other major vascular surgery peripheral vascular surgery
Intermediate (reported cardiac risk generally 1%-5%)	Intraperitoneal and intrathoracic surgery, Carotid endarterectomy, Head and neck surgery, Orthopedic surgery, Prostate surgery
Low (reported cardiac risk generally <1%)	Endoscopic procedures, Superficial procedure /Breast surgery, Cataract surgery, Ambulatory surgery

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While asking history, it is very important to judge patient's functional status. By asking simple questions related to patient's ability to perform various day to day activities, we can judge this.

Prognostic Gradient of Ischemic Responses During an ECG-Monitored Exercise Test in Patients With Suspected or Proven CAD

High Risk Ischemic Response

Ischemia induced by low-level exercise (less than 4 METs or, heart rate < 100 bpm or < 70% of age-predicted heart rate), manifested by 1 or more of the following:

- Horizontal or downsloping ST depression > 0.1 mV
- ST-segment elevation > 0.1 mV in noninfarct lead
- Five or more abnormal leads
- Persistent ischemic response >3 minutes after exercise
- Typical angina
- Exercise-induced decrease in systolic BP by 10 mm Hg

Intermediate Risk Ischemic Response:

Ischemia induced by moderate-level exercise (4 to 6 METs or HR 100 to 130 bpm or 70% to 85% of age-predicted heart rate) manifested by > 1 of the following:

- Horizontal or downsloping ST depression > 0.1 mV

- Persistent ischemic response greater than 1 to 3 minutes after exercise
- 3- 4 abnormal leads

Low Risk Ischemic Response:

No ischemia or ischemia induced at high-level exercise (> 7 METs or HR >130 bpm or > 85% of age-predicted heart rate) manifested by:

- Horizontal or downsloping ST depression > 0.1 mV
- 1- 2 abnormal leads

Inadequate test

Inability to reach adequate target workload or heart rate response for age without an ischemic response. For patients undergoing noncardiac surgery, the inability to exercise upto at least the intermediate-risk level without ischemia should be considered an inadequate test. In such cases pharmacological stress test (like MPI or Dobutamine stress echo) should be carried out.

Recommendations for Preoperative Noninvasive Evaluation of LV Function

1. Patients with dyspnea of unknown origin
2. Patients with current or prior HF with worsening dyspnea or other change in clinical status, if not

- performed within 12 months
3. Reassessment of LV function in clinically stable patients with previously documented cardiomyopathy is not well established
4. Routine perioperative evaluation of LV function in patients is not recommended

Recommendations for Noninvasive Stress Testing Before Noncardiac Surgery

1. Patients with active cardiac conditions in whom noncardiac surgery is planned should be evaluated and treated as per ACC/AHA guidelines before noncardiac surgery (Class I).
2. Noninvasive stress testing of patients with 3 or more clinical risk factors and poor functional capacity (< 4 METs) who require vascular surgery is reasonable if it will change management (Class IIa, LOE B).
3. Noninvasive stress testing may be considered for patients with at least 1 to 2 clinical risk factors and poor functional capacity (less than 4 METs) who require intermediate-risk or vascular surgery if it will change management.
4. Noninvasive testing is not useful for patients with no clinical risk factors

Estimated Energy Requirements for Various Activities

Can You...

1 METs to 4 METs

- Take care of yourself?
- Eat, dress, or use the toilet?
- Walk indoors or around the house?
- Walk a block or 2 on level ground at 3.0 to 5.0 kph)?
- Do light work around the house like dusting or washing dishes?

4 METs to < 10 METs

- Climb a flight of stairs or walk up a hill? Walk on level ground at > 6.0 kph ?
- Do heavy work around the house like scrubbing floors or lifting or moving heavy furniture?
- Participate in moderate recreational activities like golf, cricket bowling, dancing, doubles tennis, or throwing a baseball or football?
- Participate in strenuous sports like swimming, singles tennis, football, basketball, or skiing?

undergoing intermediate-risk noncardiac surgery or undergoing low-risk noncardiac surgery.

Coronary Revascularization

1. Coronary revascularization before noncardiac surgery is recommended for patients with:
 - high-risk UA/NSTEMI
 - acute STEMI
2. Coronary revascularization before noncardiac surgery is useful in patients with stable angina who have:
 - Significant left main coronary artery stenosis
 - 3-vessel disease (survival benefit is greater when LVEF <0.50)
 - 2-vessel disease with significant proximal LAD stenosis & either EF<0.50 or demonstrable ischemia on noninvasive testing.
3. In patients in whom coronary revascularization with PCI is appropriate for mitigation of cardiac symptoms & who need elective noncardiac surgery in the subsequent 12 months, a strategy of balloon angioplasty or bare-metal stent placement followed by 4-6 weeks of dual-antiplatelet therapy is probably indicated.
4. In patients who have received DES & who must undergo urgent surgical procedures that mandate the discontinuation of thienopyridine therapy, it is reasonable to continue ASA if at all possible & restart the thienopyridine as soon as possible. (Class IIa, LOE C)
5. The usefulness of preoperative coronary revascularization is not well established in:

- High risk ischemic patients (e.g. abnormal dobutamine stress echo with at least 5 segments of RWMA)
 - Low risk ischemic patients (with an abnormal dobutamine stress echo with segments 1-4 RWMA)
6. It is not recommended that routine prophylactic coronary revascularization be performed in patients with stable CAD before noncardiac surgery

Elective noncardiac surgery is not recommended within:

- 4-6 weeks of bare metal coronary stent implantation or within 12 months of drug-eluting coronary stent implantation in patients in whom thienopyridine therapy, or ASA & thienopyridine therapy, will needed to be discontinued perioperatively.
- 4 weeks of coronary revascularization with balloon angioplasty

Drug Eluting Stents (DES) and Stent Thrombosis

Premature discontinuation of dual antiplatelet therapy markedly increases the risk of catastrophic stent thrombosis and death or MI.

To eliminate the premature discontinuation of thienopyridine therapy, recommendations are:

- Before implantation of a stent, the physician should discuss the need for dual-antiplatelet therapy. In patients not expected to comply with 12 months of thienopyridine therapy, whether for economic or other reasons, strong consideration should be given to avoiding a DES.
- In patients who are undergoing

preparation for PCI and who are likely to require invasive or surgical procedures within the next 12 months, consideration should be given to implantation of a bare metal stent or performance of balloon angioplasty with provisional stent implantation instead of the routine use of a DES.

- A greater effort by healthcare professionals must be made before patient discharge to ensure that patients are properly and thoroughly educated about the reasons they are prescribed thienopyridines and the significant risks associated with prematurely discontinuing such therapy.
- Patients should be specifically instructed before hospital discharge to contact their treating cardiologist before stopping any antiplatelet therapy, even if instructed to stop such therapy by another healthcare provider.
- Healthcare providers (surgeons, dentists, etc.) who perform invasive or surgical procedures and who are concerned about periprocedural and postprocedural bleeding must be made aware of the potentially catastrophic risks of premature discontinuation of thienopyridine therapy. Such professionals who perform these procedures should contact the patient's cardiologist if issues regarding the patient's antiplatelet therapy are unclear, to discuss optimal patient management strategy.
- Elective procedures for which there is significant risk of perioperative or postoperative bleeding should be deferred until patients have completed an appropriate course

of thienopyridine therapy (12 months after DES implantation if they are not at high risk of bleeding and a minimum of 1 month for bare-metal stent implantation).

- For patients treated with DES who are to undergo subsequent procedures that mandate discontinuation of thienopyridine therapy, aspirin should be continued if at all possible and the thienopyridine restarted as soon as possible after the procedure because of concerns about late stent thrombosis.

Recommendations for Beta-Blocker Medical Therapy

1. Beta blockers should be continued in patients undergoing surgery who are receiving beta blockers for treatment of conditions with ACC/AHA Class I guideline indications for the drugs (Class I, LOE C).
2. Beta blockers titrated to heart rate and blood pressure
 - Are probably recommended for patients undergoing vascular surgery who are at high cardiac risk owing to coronary artery disease or the finding of cardiac ischemia on preoperative testing (Class IIa, LOE B)
 - Are reasonable for patients in whom preoperative assessment for vascular surgery identifies high cardiac risk, as defined by the presence of > 1 clinical risk factor (Class IIa, LOE C)
 - Are reasonable for patients in whom preoperative assessment identifies coronary artery disease or high cardiac risk, as defined by the presence of > 1 clinical risk

factor, who are undergoing intermediate-risk surgery (Class IIa, LOE B)

3. The usefulness of beta blockers is uncertain for patients who are undergoing
 - Either intermediate-risk procedures or vascular surgery in whom preoperative assessment identifies a single clinical risk factor in the absence of coronary artery disease (Class IIb, LOE C)
 - Vascular surgery with no clinical risk factors who are not currently taking beta blockers (Class IIb, LOE B)
4. Beta blockers should not be given to patients undergoing surgery who have absolute contraindications to beta blockade. (Class III, LOE C)
5. Routine administration of high-dose beta blockers in the absence of dose titration is not useful and may be harmful to patients not currently taking beta blockers who are undergoing noncardiac surgery. (Class III, LOE B)

Clinical Risk Factors: history of ischemic heart disease, history of compensated or prior heart failure, history of cerebrovascular disease, diabetes mellitus and renal insufficiency (defined in the Revised

Cardiac Risk Index as a preoperative serum creatinine of >2 mg/dL)

Recommendations for Statin Therapy

1. For patients currently taking statins and scheduled for noncardiac surgery, statins should be continued (Class I, LOE B).
2. For patients undergoing vascular surgery with or without clinical risk factors, statin use is reasonable (Class IIa, LOE B).
3. For patients with at least 1 clinical risk factor who are undergoing intermediate-risk procedures, statins may be considered (Class IIa, LOE C).

Recommendations for Alpha-2 Agonists

1. Alpha-2 agonists for perioperative control of hypertension may be considered for patients with known CAD or at least 1 clinical risk factor who are undergoing surgery.
2. Alpha-2 agonists should not be given to patients undergoing surgery who have contraindications.

Recommendations for PA Catheters

Preoperative intensive care monitoring with a pulmonary artery catheter for optimization of hemodynamic status might be considered; however, it is

Surgery	No Clinical Risk Factors	CAD or High Risk (1 or more clinical risk factors)	Patients Currently Taking Beta Blockers
Vascular	-/+	+/-	++
Intermediate risk	--	+/-	++
Low risk	--	--	++

rarely required and should be restricted to a very small number of highly selected patients whose presentation is unstable and complex and who have multiple comorbid conditions (Class IIb, LOE B).

Recommendations for Anesthetic agents

It can be beneficial to use volatile anesthetic agents during noncardiac surgery for the maintenance of general anesthesia in hemodynamically stable patients at risk for myocardial ischemia (Class IIa, level B).

Recommendations for IV Nitro

The usefulness of intraoperative nitroglycerin as a prophylactic agent to prevent myocardial ischemia and cardiac morbidity is unclear for high-risk patients undergoing noncardiac surgery, particularly those who have required nitrate therapy to control angina. The recommendation must take into account the anesthetic plan and patient hemodynamics and recognize that vasodilation and hypovolemia can readily occur during anesthesia and surgery (Class IIb, LOE C).

Use of Maintenance of Body Temperature

Maintenance of body temperature in a normothermic range is recommended for most procedures other than during periods in which mild hypothermia is intended to provide organ protection (e.g. during high aortic cross-clamping) (Class I, LOE A)

Perioperative Control of Blood Glucose Concentration

It is reasonable that blood glucose concentration be controlled during the perioperative period in patients with diabetes mellitus or acute hyperglycemia who are at high risk for myocardial ischemia or who are undergoing vascular and major surgical procedures with planned ICU admission (Class IIa, LOE B). The usefulness of strict control of blood glucose concentration during the perioperative period is uncertain in patients with diabetes mellitus or acute hyperglycemia who are undergoing noncardiac surgical procedures without planned ICU admission (Class IIb, LOE C).

Intraoperative and Postoperative Use of ST-Segment Monitoring

1. Can be useful to monitor patients with known CAD or those undergoing vascular surgery, with computerized ST segment analysis, when available, used to detect myocardial ischemia during the perioperative period (Class IIa, LOE B).
2. May be considered in patients with single or multiple risk factors for CAD who are undergoing noncardiac surgery (Class IIb, LOE B).

Surveillance for Perioperative MI

Postoperative troponin measurement is recommended in patients with ECG changes or chest pain typical of acute coronary syndrome (Class I, LOE C). The use of postoperative troponin measurement is not well established in patients who are clinically stable and have undergone vascular and intermediate-risk surgery (Class IIb, LOE C). Postoperative troponin measurement is not recommended in asymptomatic stable patients who have undergone low-risk surgery (Class III, LOE C).

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CIMS Varicose Veins Programme & Special Workshop July 5-9, 2012

Varicose veins has long been the commonest and most neglected clinical entity with a huge disease burden affecting the quality of life of millions of Indian people. With recent advances in diagnostic work up and therapeutic modalities like RF ablation, we, at CIMS hospital have developed CIMS varicose veins programme and successfully treated huge number of patients. We would like to enlighten the doctors of not only Ahmedabad, but the whole of Gujarat state about varicose veins and request you to support us in successfully treating the chronically suffering patients.

What are varicose veins? Varicose veins are enlarged veins that are visible through the skin and may appear as blue or purple twisted, knot-like cords. Varicose veins can occur anywhere in the body, but are more commonly found on the legs.



What are spider veins? Spider veins, a milder type of varicose veins, are smaller than varicose veins and often look like a sunburst or "spider web." They are red or blue in color and are commonly found on the face and legs, just under the surface of the skin.

What causes varicose veins? Obesity, Genetic Predisposition, Prolong standing, Previous DVT, etc.

What are the symptoms of varicose veins? Leg Ache, Itching, Skin Pigmentation, Cosmetic Blemish, Edema, Venous Ulcers

Diagnosis: Detailed clinic examination followed by Venous Doppler Scan

Treatment Options:

Non-surgical: Compression stockings and Microflavonoids

Surgical: Surgical Stripping, Foam Sclerotherapy, **Radio Frequency Ablation**, Multiple Hook Phlebectomies

Patients will be provided following **FREE** services:

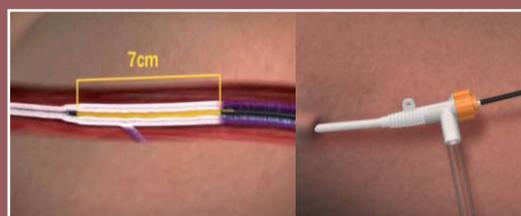
1. Consultation ₹ ~~500~~
2. Doppler for Varicose Veins ₹ ~~2000~~ (if indicated)

Daily screening camp of the concerned patients will be held from June 15, 2012 onwards at CIMS Hospital.
Time : 2.00 pm - 6.00 pm

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VNUS Closure ablation using RF



Ablation involves the insertion of a thin, flexible tube called a catheter inserted into a varicose vein. The tip of the catheter heats the walls of the varicose vein using radiofrequency energy (also known as Closure procedure) and destroys the vein tissue. Once destroyed, the vein is no longer able to carry blood and is absorbed by your body.

Sclerotherapy:

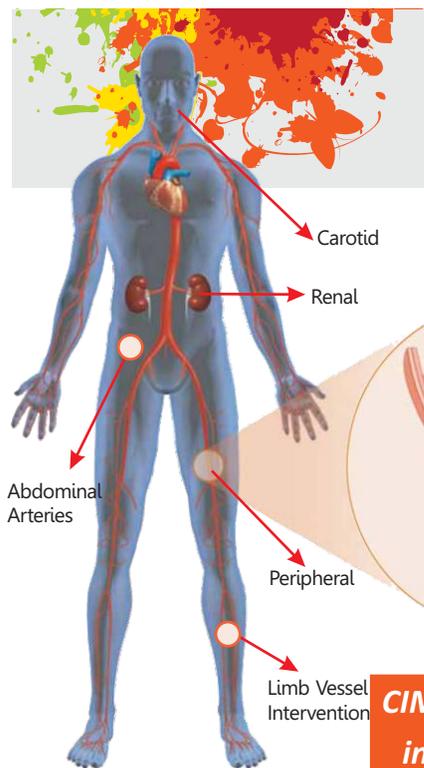
Sclerotherapy is the most common treatment for both spider and varicose veins. This procedure involves a saline or chemical solution that is injected into the varicose veins that causes them to harden so that they no longer fill with blood. Blood that would normally return to the heart through these veins returns to the heart by way of other veins. The veins that received the injection will eventually shrivel and disappear. The scar tissue is absorbed by the body.

Ambulatory Phlebectomies:

This procedure involves passing hooks through small incisions, and may be done alone or together with vein stripping.

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Endovascular Peripheral Workshop with Dr. Ashit Jain August 31 - September 1, 2012



Dr. Ashit Jain is a well known Interventional Cardiologist practicing for the past 20 years in California, USA. Graduated from University of Delhi, completed Fellowship in Interventional Cardiology and Peripheral Vascular Disease at Ochsner Medical Center in New Orleans, USA, he has developed an extensive clinical research program at Washington Hospital in Fremont, California and is involved in multiple new device research technologies. He has also served as site principal investigator on over 26 multi-center clinical research trials and has written and presented many abstracts and publications in the field. A pioneer in Carotid Interventional Programs in the San Francisco Bay area, he is affiliated with five hospitals in the East Bay of San Francisco and has personally performed over 500 carotid interventions.

CIMS - The Heart Care Clinic Team has done over hundreds of Endovascular cases including a very large number of carotid interventions over the last few years.

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- Carotid Artery Stenosis
- Renal Artery Stenosis
- Acute Limb Ischemia
- Critical Limb Ischemia
- Varicose Veins
- Dialysis access procedures
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- Uterine fibroids
- Vascular malformations
- Venous insufficiency and venous ulcers
- Claudication
- Aortoiliac occlusive disease
- Femoropopliteal Disease
- Brachiocephalic Arterial Disease
- Venous Thromboembolic Disease
- Thoracic Abdominal Aortic Aneurysms
- Mesenteric Disease
- Catheter-Based Interventions for Failing Hemodialysis Accesses
- Infrapopliteal Peripheral Arterial Disease
- Intracranial Arterial Stenotic Disease
- Vertebral Arterial Disease

Patients will be provided following **FREE** services:

- 1. Consultation 2. ABI 3. Doppler (Arterial or Varicose Veins - if indicated)**

Daily screening camp of the concerned patients will be held from **June 15, 2012 onwards**

at CIMS Hospital. Time : 2.00 pm - 6.00 pm

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Module	Before 31-10-2012	Before 31-12-2012	Spot Reg.(After 31-12-2012)
(A) Main Conference (January 4-6, 2013) (including certification course)	₹ 5000 <input type="checkbox"/>	₹ 6000 <input type="checkbox"/>	₹ 7000 <input type="checkbox"/>
(B) Certification Courses (January 6, 2013)	₹ 1500 <input type="checkbox"/>	₹ 2000 <input type="checkbox"/>	₹ 2500 <input type="checkbox"/>
(C) ** Deposit for Hotel Accommodation (Separate cheque)	₹ 3000 <input type="checkbox"/>	₹ 3000 <input type="checkbox"/>	₹ 3000 <input type="checkbox"/>
(D) For students doing MD (Medicine) with proof	₹ 2500 <input type="checkbox"/>	₹ 3000 <input type="checkbox"/>	₹ 3500 <input type="checkbox"/>
(E) Spouse Hotel Registration (Non refundable)	₹ 3500 <input type="checkbox"/>	₹ 3500 <input type="checkbox"/>	₹ 3500 <input type="checkbox"/>

** Hotel Accommodation is optional. If you have applied for accommodation, please send a separate deposit cheque of ₹ 3000 to cover the cost of your stay for two nights. Spouse hotel registration will be charged extra (A separate cheque of ₹ 3500 has to be sent for the purpose). Students also need to pay for Hotel Accommodation at the same rate.

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Programme Outline

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 - Preventive Cardiology
 - Arteries & Valves
 - Heart Failure
 - Cardiac Pharmacology
 - Imaging / Diagnostics / Therapeutics
 - Peripheral Vascular Disease (PVD)
 - Cardiology Guidelines
 - Year in Cardiology/Cardiac Surgery
 - Interactive ECGs
 - Interventional Cardiology
 - General Cardiology
 - Clinical Cardiology
 - Internal Medicine
 - Trauma Care
 - Critical Care/Pulmonary
 - Neonatal and Pediatric Critical Care
 - Real life cases (Live from the Cath Lab/ OT or Pre-recorded live cases)
- ...and many more

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